

Mathematical Literacy for College Students (MLCS)

Mathematics Student Learning Outcomes

FUNCTIONS and MODELING

FUNCTIONS and MODELING GOAL: Students will represent relationships between quantities in multiple ways and solve problems that require an understanding of functions.

Alternate wording: Students will understand functions as a way of modeling a correspondence between two variables. Students will be able to represent functions in various ways: verbally, algebraically, and graphically.

Students will:

- A. Translate problems from a variety of contexts into a mathematical representation and vice versa.** (Representations will include linear and exponential functions.)
For example: Students will read how the balance in a savings account grows because of monthly interest. They will use the information to construct a table of months and balances and then arrive at a model that provides the balance for a given month.
- B. Describe the behavior of common types of functions using expressions, graphs, and tables.**
For example: Identify any interval over which the curve is increasing at an increasing rate using either numerical or graphical representation. Construct an appropriate graphical representation of a data set.
- C. Identify when a linear model or trend is appropriate for data; when a linear model does not appear to be appropriate, know how to explore the applicability of other models.**
For example: This topic provides an opportunity to discuss error of predictions.
- D. Identify important characteristics of functions in various representations.**
For example: Identify the minimum value of a function from a table or graph. Predict the behavior of a curve from a graph or table.
- E. Use appropriate terms and units to describe rate of change.**
For example: Be able to describe the rate of change using slope for linear relationships or average rate of change for non-linear relationships using appropriate units.
- F. Understand that abstract mathematical models used to characterize real-world scenarios or physical relationships are not always exact and may be subject to error from many sources, including variability.**